

IN THE CLAIMS:

Please amend claims 1-23, cancel claim 24 without prejudice and add new claims 25-37 as follows:

1. (Currently amended) A method for recording search information for a digital data stream using a digital recording apparatus, the method comprising ~~the steps of:~~

recording the received digital data stream by grouping the received digital data stream into a plurality of stream object units, each stream object unit having a predetermined time length, and at least one stream object unit forming a stream object ~~having~~comprising a start packet arrival time and a last packet arrival time;

preparing a stream time map information table associated with each stream object;

recording time length information for each stream object unit in a mapping list in a predefined order, the mapping list being separately maintained from the stream object; and

recording index information in the stream time map information table of a selected stream object, wherein the index information ~~includes~~comprises an index number to locate a first stream object unit associated with the selected stream object.

2. (Currently amended) [[A]] The method of claim 1, wherein the time length information is expressed ~~in terms of~~as a count value counted at a constant interval.

3. (Currently amended) [[A]] The method of claim 2, wherein the count value ~~is~~comprises a number incremented by one over each constant interval.

4. (Currently amended) [[A]] The method of claim 1, wherein the stream time map information table associated with each stream object ~~contains~~comprises a stream object unit size, an index number, a number of mapping list entries, a start packet arrival time and a last packet arrival time.

5. (Currently amended) ~~[[A]]~~ The method of claim 1, wherein the mapping list ~~includes~~comprises a first group of time length information and a second group of time length information, the first group associated with a first stream object and the second group associated with a second stream object.

6. (Currently amended) A method for recording search information for a digital data stream using a digital recording apparatus, the digital data stream being grouped into a plurality of stream object units, each stream object unit having a predetermined time length and at least one stream object unit forming a stream object ~~having~~comprising a start packet arrival time and a last packet arrival time, the method ~~comprising the steps of:~~

preparing a stream time map information table associated with each stream object;

recording time length information for each stream object unit in a mapping list in a predefined order, the mapping list being separately maintained from the stream object; and

recording index information in the stream time map information table of a selected stream object, wherein the index information ~~includes~~comprises an index number to locate a first stream object unit associated with the selected stream object.

7. (Currently amended) ~~[[A]]~~ The method of claim 6, wherein the time length information is expressed ~~in terms of~~as a count value counted at a constant interval.

8. (Currently amended) ~~[[A]]~~ The method of claim 7, wherein the count value ~~is~~comprises a number incremented by one over each constant interval.

9. (Currently amended) ~~[[A]]~~ The method of claim 6, wherein the stream time map information table associated with each stream object ~~contains~~comprises a stream object unit size, an index number, a number of mapping list entries, a start packet arrival time and a last packet arrival time.

10. (Currently amended) ~~[[A]]~~ The method of claim 6, wherein the mapping list ~~contains~~comprises a first group of time length information and a second group of time length information, the first group associated with a first stream object and the second group associated with a second stream object.

11. (Currently amended) A method for selectively searching recorded digital data streams recorded in a recording medium havingcomprising a mapping list and a stream object, the data streams stored in a plurality of stream object units, each stream object unit having a predetermined time length and at least one stream object unit forming a stream object havingcomprising a start packet arrival time and a last packet arrival time, and the mapping list ~~contains~~comprises time length information for each stream object unit, the recording medium further havingcomprising a stream time map information table associated with each stream object, the stream time map information table ~~containing~~comprising index information to locate a first stream object unit associated with a selected stream object, the method comprising ~~the steps of:~~

(a)-selecting a stream object for reproduction;

(b)-locating the stream time map information table corresponding to the selected stream object;

(c)-reading the index information of the stream time map information table, wherein the index information ~~contains~~comprises a number to locate the first stream object unit corresponding to the selected stream object; and

(d)-locating the first stream object unit corresponding to the selected stream object.

12. (Currently amended) ~~[[A]]~~ The method of claim 11, further comprising the step of (e) reading the time length information of the first stream object unit from the mapping list.

13. (Currently amended) ~~[[A]]~~ The method of claim 12, wherein the stream object is selected ~~base~~based on an externally defined search time and the time length information read from the mapping list is accumulated with subsequent time length information until a stream object unit corresponding to the externally defined search time is located.

14. (Currently amended) ~~[[A]]~~ The method of claim 13, further comprising the step of (f) reproducing the recorded digital data stream from the stream object unit corresponding to the externally defined search time.

15. (Currently amended) An apparatus for recording search information for a digital data stream on a recording medium, the apparatus comprising:

~~recording means for~~ receiving the digital data stream by grouping the received digital data stream into a plurality of stream object units, each stream object unit having a predetermined time length, and at least one stream object unit forming a stream object ~~having~~comprising a start packet arrival time and a last packet arrival time;

~~generating means for preparing~~ generating a stream time map information table associated with each stream object on the recording medium;

recording means ~~for~~ recording time length information for each stream object unit in a mapping list in a predefined order, the mapping list being separately maintained from the stream object; and

recording means ~~for~~ recording index information in the stream time map information table of a selected stream object, wherein the index information ~~includes~~comprises an index number to locate a first stream object unit associated with the selected stream object.

16. (Currently amended) ~~[[An]]~~ The apparatus of claim 15, wherein the time length information is expressed ~~in terms of~~as a count value counted at a constant interval.

17. (Currently amended) [[An]] The apparatus of claim 16, wherein the count value ~~is~~comprises a number incremented by one over each constant interval.

18. (Currently amended) [[An]] The apparatus of claim 15, wherein the stream time map information table associated with each stream object ~~contains~~comprises a stream object unit size, an index number, a number of mapping list entries, a start packet arrival time and a last packet arrival time.

19. (Currently amended) [[An]] The apparatus of claim 15, wherein the mapping list ~~includes~~comprises a first group of time length information and a second group of time length information, the first group associated with a first stream object and the second group associated with a second stream object.

20. (Currently amended) An apparatus for selectively searching recorded digital data streams recorded in a recording medium ~~having~~comprising a mapping list and a stream object, the data streams stored in a plurality of stream object units, each stream object unit having a predetermined time length and at least one stream object unit forming a stream object ~~having~~comprising a start packet arrival time and a last packet arrival time, and the mapping list ~~contains~~comprises time length information for each stream object unit, the recording medium further ~~having~~comprising a stream time map information table associated with each stream object, the stream time map information table ~~containing~~comprising index information to locate a first stream object unit associated with a selected stream object, the apparatus comprising:

selecting means ~~for~~-selecting a stream object for reproduction;

locating means ~~for~~-locating the stream time map information table corresponding to the selected stream object;

reading means ~~for~~-reading the index information of the stream time map information table, wherein the index information ~~contains~~comprises a number to locate the first stream object unit corresponding to the selected stream object; and

locating means ~~for~~-locating the first stream object unit corresponding to the selected stream object.

21. (Currently amended) ~~[[An]]~~ The apparatus of claim 20, further comprising reading means ~~for~~-reading the time length information of the first stream object unit from the mapping list.

22. (Currently amended) ~~[[An]]~~ The apparatus of claim 21, wherein the stream object is selected ~~base~~based on an externally defined search time and the time length information read from the mapping list is accumulated with subsequent time length information until a stream object unit corresponding to the externally defined search time is located.

23. (Currently amended) ~~[[An]]~~ The apparatus of claim 22, further comprising reproducing means ~~for~~-reproducing the recorded digital data stream from the stream object unit corresponding to the externally defined search time.

24. (Canceled)

25. (New) A method for recording a data stream on a recording medium, the method comprising:

grouping the data stream into stream objects,

recording a playlist for the stream objects, the playlist recorded in a common information file of the recording medium; and

recording stream time map information in a stream information file of the recording medium, the stream time map information comprising a mapping list having time search information for searching the stream objects.

26. (New) The method of claim 25, wherein the mapping list comprises a plurality of sub mapping lists, each of the sub mapping lists comprising time search information for searching the corresponding one of the stream objects.

27. (New) The method of claim 25, further comprising recording a table of content in an application information file of the recording medium.

28. (New) The method of claim 27, wherein the table of content comprises random-access entry point information that allows random access to the recorded data stream.

29. (New) The method of claim 25, further comprising recording presentation sequence information of the recorded data stream in the common information file.

30. (New) The method of claim 25, wherein recording the playlist comprises recording random-access entry point information that allows random access to the data stream as a part of the playlist.

31. (New) An apparatus for recording a data stream on a recording medium, the apparatus comprising;

a recording unit recording the data stream by grouping the data stream into stream objects, recording a playlist for the stream objects in a common information file of the recording medium, and recording stream time map information in a stream information file of the recording medium, the stream time map information comprising a mapping list having time search information for searching the stream objects.

32. (New) The apparatus of claim 31, wherein each of the stream objects comprises a plurality of stream object units and the mapping list comprises the time search information for searching each of the stream object units.

33. (New) The apparatus of claim 31, wherein the mapping list comprises a plurality of sub mapping lists, each of the plurality of sub mapping lists comprising the time search information for searching the corresponding one of the stream objects.

34. (New) The apparatus of claim 31, wherein the recording unit records a table of content in an application information file of the recording medium.

35. (New) The apparatus of claim 34, wherein the table of content comprises random-access entry point information that allows random access to the recorded data stream.

36. (New) The apparatus of claim 31, wherein the recording unit records presentation sequence information of the recorded data stream in the common information file.

37. (New) The apparatus of claim 31, wherein the recording unit further records random-access entry point information that allows random access to the data stream as a part of the playlist.